

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A local oscillator providing an in-phase local oscillating signal and quadrature-phase signal to first and second mixers outputting an input signal with a mixed mixing in-phase local oscillating signal and quadrature-phase local oscillating signal, respectively, comprising:

a local oscillating unit having first and second delay cells and outputting ~~said~~ the in-phase local oscillating signal and ~~said~~ the quadrature-phase local oscillating signal; and

a correction circuit ~~for controlling~~ being configured to control a phase matching characteristic between ~~said~~ the in-phase local oscillating signal and ~~said~~ the quadrature-phase local oscillating signal outputted from said local oscillator, said correction circuit setting bias current flowing in said first and second delay cells of said local oscillator ~~as being to be~~ different.

2. (Currently Amended) The local oscillator of claim 1, wherein said first delay cell of said local oscillating unit has + and – input nodes, + and – output nodes, and a correction node, ~~said a~~ cell converting phase of a signal is applied to said + and – input nodes and ~~outputting it~~ outputs the signal to said – and + output nodes,[[;]]

~~wherein~~ said second delay cell of said local oscillating unit has + and – input nodes which connect with said – and + output nodes of said first delay cell, - and + output nodes connecting with said + and – input nodes of said first delay cell, and a correction node, said

cell converting phase of the signal is applied to said + and – input nodes of said second delay cell and ~~outputting~~ outputs it to said – and + output node of said second delay cell,[[;]] and
wherein bias current flowing in said first and second delay cell is controlled by current flowing in said correction node.

3. (Currently Amended) The local oscillator of claim 1, wherein said correction circuit ~~comprises~~ includes first and second varying-current sources, said first and second varying-current sources ~~being~~ are connected between said correction node nodes of said first and second delay cells and a first power source.

4. (Currently Amended) A local oscillator providing an in-phase local oscillating signal and a quadrature-phase signal to first and second mixers outputting an input signal with ~~mixing~~ a mixed in-phase local oscillating signal and quadrature-phase local oscillating signal, respectively, comprising:

a local oscillating unit having first and second delay cells and outputting ~~said~~ the in-phase local oscillating signal and ~~said~~ the quadrature-phase local oscillating signal; and

a correction circuit ~~for controlling~~ being configured to control a phase matching characteristic between ~~said~~ the in-phase local oscillating signal and ~~said~~ the quadrature-phase local oscillating signal outputted from said local oscillator, said correction circuit setting bias voltage applied to first and second delay cells ~~as being~~ to be different.

5. (Currently Amended) A local oscillator providing an in-phase local oscillating signal and a quadrature-phase signal to first and second mixers outputting an input signal

with ~~mixing~~ a mixed in-phase local oscillating signal and quadrature-phase local oscillating signal, respectively, comprising:

a local oscillating unit having first, second, and third terminals, first and second delay cells ~~comprising~~ having active devices controlling current flowing to said third terminal from said second terminal in proportion to applied voltage to said first terminal, said oscillator outputting said the in-phase local oscillating signal and said the quadrature-phase local signal; and

a correction circuit having first, second and third terminals connecting with said first, second, and third terminals of said ~~active device~~ local oscillating unit, respectively and controlling phase matching ~~characteristic~~ characteristics between said the in-phase local oscillating signal and said the quadrature-phase local signal outputted from said local oscillator by setting ~~width~~ widths of said ~~active device~~ devices included in said first and second delay cells ~~as being~~ to be different.

6. (Currently Amended) The local oscillator of claim 5, wherein said correction circuit has first, second, and third terminals, ~~one or more~~ at least one active ~~device~~ devices and ~~switching means~~ switch, said active device controlling current flowing to said third terminal from said second terminal in proportion to voltage applied to said first terminal, the first terminal of said active device forming said first terminal of said correction circuit, said second terminal forming said second terminal of said correction circuit, said third terminal of said active device being connected ~~with~~ to one end of said ~~switching means~~ switch, the other end of said switching means forming said third terminal of said correction circuit.

7. (Currently Amended) The local oscillator of claim 5 or 6, wherein said active device is nMOSFET device, said first terminal is a gate, ~~and, said~~ second terminal is a drain, and said third terminal is a source.

8. (Currently Amended) The local oscillator of claim 5 or 6, wherein said active device is pMOSFET device, said first terminal is a gate, said second terminal is a source, and said third terminal is a drain.

9. (Currently Amended) A local oscillator providing an in-phase local oscillating signal and a quadrature-phase signal to first and second mixers outputting an input signal with ~~mixing~~ a mixed in-phase local oscillating signal and a quadrature-phase local oscillating signal, respectively, comprising:

a local oscillating unit ~~comprising~~ having first and second delay cells ~~comprising~~ having a passive device having specific impedance and outputting ~~said the~~ in-phase local oscillating signal and ~~said the~~ quadrature-phase local oscillating signal; and

a correction circuit having first and second terminals connecting ~~with~~ one end and the other end of said passive device and controlling phase matching characteristics between ~~said the in-phase~~ in-phase local oscillating signal and ~~said the~~ quadrature-phase local oscillating signal being outputted from said local oscillator by making impedance of said passive device ~~included~~ including said first and second delay cells different.

10. (Currently Amended) The local oscillator of claim 9, wherein said correction circuit ~~comprises~~ includes a passive device and a switch ~~switching means~~ having a specific impedance, one end of said passive device being connected with said first terminal of said

correction circuit, the other end being connected with ~~said~~ one end of said switch ~~switching~~
~~means~~, the other end of said switching means being connected with said second terminal of
said correction circuit.

11. (Original) The local oscillator of claim 9 or 10, wherein said passive
device is an inductor.

12. (Original) The local oscillator of claim 9 or 10, wherein said passive
device is a capacitor.

13. (Currently Amended) A receiver comprising:
a local oscillator having first and second delay ~~cell~~ cells and outputting an in-phase
local oscillating signal and a quadrature-phase local oscillating signal;
first and second mixers mixing an input signal with said in-phase local oscillating
signal and said quadrature-phase signal, respectively and outputting ~~the~~ a mixed signal; and
a correction circuit ~~for controlling~~ being configured to control phase matching
~~characteristic~~ characteristics between said in-phase local oscillating signal and said
quadrature-phase local oscillating signal outputted from said local oscillator, said correction
circuit setting bias voltage applied to first and second delay cells ~~as being~~ to be different.

14. (Cancelled).

15. (Currently Amended) A receiver comprising:

a local oscillator having first, second, and third terminals, first and second delay cells ~~comprising~~ having active devices controlling current flowing to said third terminal from said second terminal in proportion to applied voltage to said first terminal, said local oscillator outputting said in-phase local oscillating signal and said quadrature-phase local signal;

first and second mixers mixing an input signal with said in-phase local oscillating signal and said quadrature-phase signal, respectively and outputting ~~the~~ a mixed signal; and

a correction circuit having first, second, and third terminals connecting ~~with~~ said first, second, and third terminals of said active device, respectively and correcting phase matching ~~characteristic~~ characteristics between signals outputted from said first and second mixers by setting a width of an active device included in said first and second delay cells ~~as-being to be~~ different.

16. (Currently Amended) A receiver comprising:

a local oscillator ~~comprising~~ having first and second delay cells ~~comprising~~ having a passive device having a specific impedance and outputting ~~said~~ an in-phase local oscillating signal and ~~said~~ an quadrature-phase local oscillating signal;

first and second mixers mixing an input signal with said in-phase local oscillating signal and said quadrature-phase signal, respectively and outputting ~~the~~ a mixed signal; and

a correction circuit having first and second terminals connecting with one end and the other end of said passive device and controlling phase matching characteristics between said ~~in-phase~~ in-phase local oscillating signal and said quadrature-phase local oscillating signal being outputted from said local oscillator by making impedance of said passive device ~~included~~ including said first and second delay cells different.